

## Section 3

# **Institutional Student Activities and Initiatives**



## Introduction

In an effort to add value and create a smoother transition for students into Los Alamos National Laboratory (LANL, the Laboratory), the Education Program Office (EPO) team participated in a significant amount of planning for fiscal year 2002 (FY02). One of the planned goals for students was to offer them a variety of diverse activities that would help create a more comprehensive Laboratory experience. An additional goal was to

offer expanded professional, social, and educational activities, thereby creating a more positive experience for interns. Program improvements this year included: revising and creating appropriate “tool kits” for students, mentors, and division student liaisons; holding “all-hands” orientation meetings; developing an activities calendar; and assisting students with their housing needs.

## All-Student Meetings

Three proactive “All-Student Meetings” were held in 2002. The students met with the Student Programs Advisory Committee (SPAC) on June 19; with Laboratory Deputy Director for Science and Technology Bill Press on July 9; and with Laboratory Director John Browne on July 17 (see Figure 56). The purpose of the meetings was to address student concerns, issues, and progress in order to improve the overall student experience for subsequent years. Each meeting began with a brief presentation about the importance and value of students and a summary of program improvements based on FY2001 student feedback. The remainder of each meeting was devoted to questions from students. Each meeting was well attended. Continued areas of interest to students are student housing, transportation, what is perceived as a lack



*Figure 56. Laboratory Director John Browne answers questions at his annual summer meeting with students on Wednesday, July 17, 2002, in the Physics Building Auditorium at Technical Area 3.*

of social life after work hours, and the cost of living in the area. These meetings have provided important guidance, feedback, and focus for many of the organizations that deal directly with students, and many committees and subcommittees are currently in place as a result of past “All-Student Meetings.”

## Distinguished Performance Awards

### Student Distinguished Performance Awards.

Laboratory Director John Browne recognized students for their outstanding performance by presenting the Student Distinguished Performance Awards on August 3. The purpose of the awards was to recognize students who had made unique and outstanding contributions to the Laboratory. Mentors nominated 28 students for this award. Six students received the award, which included a plaque and cash. One of these students is shown in Figure 57. FY02 was the second year that the awards had been presented. SPAC, a committee of Laboratory technicians, staff members, and student representatives, created the awards program and sponsors it each year.



*Figure 57. Laboratory Director John Browne congratulates Gabriela Sanchez, right, of Physical Chemistry and Applied Spectroscopy (C-PCS), during a Student Distinguished Performance Award presentation at University House. Next to Sanchez is Bill Press, Laboratory deputy director for science and technology. At left is Peter Chiarelli of the Michelson Resource (B-4).*

### Mentor Distinguished Performance Awards.

This was the first year for Mentor Distinguished Performance Awards, which were modeled after the Student Distinguished Performance Awards. The purpose of these new awards is to recognize and honor the outstanding efforts of Laboratory mentors. Twenty-seven mentors were nominated for the awards, and seven mentors were honored. Figure 58 shows one of the honorees. The awards included a plaque and a gift certificate. Laboratory Director John Browne presented the awards (along with the Student Distinguished Performance Awards) on August 3.



*Figure 58. Mabel Grey-Vigil, Thermonuclear Applications (X-2), receives congratulations for her Distinguished Mentor Award.*

## Distinguished Students Program

*Providing Mentors and Managers with Early Access to Top-Quality Students*

**Project Description.** The Distinguished Students Program (DSP) at Los Alamos National Laboratory (LANL, the Laboratory) is a new initiative begun in 2002. It strives to take a new approach in placing top-quality undergraduate and graduate students in rewarding research positions at the Laboratory and to be more strategic in the selection of students for building the future Laboratory workforce. The program utilizes timely half-day work sessions as a key technique toward recruiting excellent students and matching them with mentors and assignments that provide a good fit with their interests.

Under the leadership and encouragement of William H. Press, Laboratory deputy director for science and technology, this program has initiated a new way of recruiting top-notch students. This program supports the Laboratory in fulfilling Institutional Goal #7: “Focus on diverse, entry-level, and strategic hiring.”

The program recruits from the best schools in science and engineering, a list including but not restricted to the following: Massachusetts Institute of Technology (MIT), Georgia Institute of Technology, Texas A&M University (Texas A&M), New Mexico Institute of Mining and Technology, the University of Texas at Dallas (UTD), Arizona State University, Belmont University, Benedict College, Boston University, Brown University, Bryn Mawr College, Bucknell University, California Institute of Technology, Carnegie Mellon University, The Catholic University of America, Cornell University, Claflin University, Eastern New Mexico University, Stanford University, Rice University, Spelman College, the University of California (five campuses), and Princeton University.

Students must have majors in engineering, mathematics, computer science, or science and be prescreened as a result of receiving multiple scholarships. These high-performing students must also have a minimum grade point average (GPA) of 3.5 on a 4.0 scale. The Laboratory provides resumes to its scientific staff before the work sessions in November and March so that offers of summer internship assignments can be extended earlier than would otherwise be possible. This early contact and notification achieves the goal of attracting students to the Laboratory before the competition is able to hire them.

The DSP work sessions are attended by people from upper management who are given the opportunity to review the prescreened student resumes. Interested mentors contact students immediately after the work session to determine whether there is a match of student interests and technical needs. This recruitment strategy has allowed divisions to compete for students, allowing the students to choose which research assignment appears to be the most challenging or the best fit. What is different about this approach? The Laboratory is more proactive, efficient, and strategic with its student placements.

In addition to the cutting-edge technology that Laboratory scientists can offer these exemplary students during their summer internship assignments, the students provide the Laboratory with new ideas and new perspectives. This diversity of thinking, as well as the broad ethnic diversity provided by these prestigious programs and universities, creates an enormous advantage for the Laboratory. The program is an effective and competitive placement event for the best and brightest students (Figure 59).



*Figure 59. Dave Modl of the High Performance Computing Environments Group (CCN-8), seated at left at the visualization control console, explains to students how stereo visuals work. Standing, left to right, are Michael Preiner (Hertz Scholar), Lucas Vortier (Hertz Scholar), Justin Appleby (McDermott Scholar), and Joshua Clough (National Science Foundation Scholar).*

#### **Performance Goal, Objectives, and Milestones.**

The goal of the program is to develop a diverse workforce of individuals with enhanced problem-solving and technical skills to meet the Laboratory's current and future scientific and technological needs and to contribute to the research of technical line organizations. The objectives of the DSP that support this goal state that the program shall do the following things:

- require that students contribute directly to ongoing Laboratory research projects;
- attract students to learn in Laboratory-identified critical-skills areas;
- strengthen and focus students' fields of study and career plans;
- increase the diversity of the students chosen to participate in national research programs;
- increase students' knowledge and skills in science, math, engineering, and computer science; and
- increase students' understanding of the research process.

Students are recruited through a variety of strategies that include individual contacts at

universities, recruiting visits to targeted universities and colleges, and the use of student ambassadors.

Students spend their time at the Laboratory conducting science research with their mentors and participating in special supplementary educational activities that include tours, field trips, lectures, workshops, technology training, and demonstrations. In addition, students are given the opportunity to be instructed in preparing and displaying a scientific poster, giving a technical presentation, and writing a scientific paper. They are encouraged to participate in the summer's Student Symposium and to submit the results of their research to a journal for publication.

**Indicators of Success.** The following list shows the indicators that this program is a success:

- broad-based excellence in science and engineering;
- adequate infrastructure and support for this program;
- laboratory infrastructure and coordination that is adequately funded;
- high-quality students and mentors;
- top-quality university participation; and
- student-conducted research that is important and engaging.

**Highlights of This Year's Accomplishments.** On January 24, 2002, the Laboratory hosted the first Distinguished Students Work Session, working with representatives from each of the technical divisions to identify summer internship opportunities for some 130 high-performing students. As a result of this session, we identified matches between many of the students and organizations within the Laboratory. One other session was held in March 2002. Approximately 25% of the students presented at the work sessions were offered internships and accepted them.

The universities and organizations that participated in the FY02 program were: career centers at Georgia Institute of Technology and Texas A&M; the Hertz Foundation Scholars Program; the McDermott Scholars Program; the National



Physical Science Consortium Fellows Program; the National Science Foundation Fellows Program; and the Freshman/Alumni Summer Internship Program at MIT. The Industrial Practices Program at the UTD will join the program in FY03. The UTD program is coordinated by the Erik Jonsson School of Engineering and Computer Science and is a highly sought-after educational collaboration between UTD and the Laboratory.

Laboratory divisions offering internships in FY02 were: Applied Physics; Chemistry; Computer and Computational Sciences; Computing Communications and Networking; Decision Applications; Earth and Environmental Sciences; Health, Safety, and Radiation Protection; Los Alamos Neutron Scattering Center; Materials Science and Technology; Nonproliferation and International Security; Physics; Project Management; and Theoretical (Division).

One student in the program, Alexander Enrique Maslowski, won the “engineering oral presentation award” at the 2002 Student Symposium. His presentation was titled: “Selection Basis of the F-A Method or the Standard Differential Operator Method for the Calculation of Monte Carlo Neutron Criticality Perturbations.” Jeff Favorite of the Diagnostics Methods Group (X-5 in the Applied Physics Division) was Alexander’s mentor.

#### **Comments from Distinguished Students:**

*“Summer is going well. Research is good; not much stress; just running some computer codes to find some new computational method. My mentor right now is ... from X-5. He is really nice, but since they located us at University of New Mexico-Los Alamos, I don’t get to see him that much. However, we keep good communication by e-mail and phone.... I guess overall it has been a positive experience.”*

*“...The work experience did little to change my career aspirations; rather, it opened my mind up to different possibilities. People in my division tried*

*very hard to convert me to earth sciences and geology; however, I resisted. I still want to do physics but appreciate the broadening experience. Also, I might consider working at a national lab as an alternative to tenure track at a university.... All in all, it was a worthwhile experience that gave me a different and unique perspective on my future and working in general.”*

*“I feel that I grew as a student, scientist, and person as a result of the new ideas to which I was introduced, challenges I faced, and people with whom I communicated while undertaking research at Los Alamos National Laboratory during this past summer. I was presented to many interesting people and gained some extraordinary research experience. I enjoyed all of my learning opportunities.... The first learning objective I achieved was teaching myself much about plasma physics, nonlinear dynamics, fluid dynamics, and partial differential equations from books at a pace that was suitable to my learning desire. Los Alamos National Laboratory has a physics library that surpasses the grandeur of MIT’s physics library.... I came to understand that all of the paperwork and safety precautions were necessary for protecting my well-being and the well-being of my fellow researchers. Furthermore, all of the paperwork and safety precautions were necessary for ensuring that Los Alamos National Laboratory’s image as a premier research laboratory continue.”*

#### **Comments from Universities:**

*“They (the students) both seem to have had a positive experience at LANL this summer.” (MIT)*

*“I really look forward to working with you. We have some excellent students who will fit into your category of ‘very close to 4.0 GPAs,’ and we understand your statement on what assignments best ‘fit’ the student and the research needs of the mentor.... We had a discussion today about special handling of gifted students.” (UTD)*

*“Thank you for giving us another shot at this great opportunity!” (Texas A&M)*



## Programmatic Improvements

**Toolkits.** The student toolkit was already in existence before FY02, but it was significantly revised in FY02 to provide more practical student resource information, including the Student/Mentor Workplan Discussion Guide. This guide is an important document because it clarifies and defines the type of work to be accomplished and the expectations of both mentor and student. The document is a critical first step in ensuring that the student is off to a good start and has a clear understanding of what to expect while at the Laboratory.

The mentor toolkit was also significantly revised and focused on practical and necessary information such as policy and the Student/Mentor Discussion Guide—tools needed to create a positive working relationship.

A division liaison toolkit was created to help enhance the role of the liaison, a valued additional resource for students. The toolkit mirrored that of the mentor toolkit and allowed mentors, students, and liaisons to have access to the same information, policies, practices, and resources.

**All-Hands Orientation Meetings.** Several “all-hands” meetings were held to prepare for the arrival of students. The participants were internal partners who played integral roles in hiring students, ensuring student safety, providing transportation, and providing training. These meetings were very beneficial. One measure of their success was that more comprehensive and seamless orientation sessions were offered enabling a smoother entry into the Laboratory for student interns.

**Activities Calendar.** The activities calendar focused on educational, social, and professional development activities. Among the activities

offered were resume-writing workshops, presentation skills workshops, biweekly breakfast seminars, and Symposium 2002. In order to develop a comprehensive and varied list of activities, team members met regularly with internal and external organizations. For example, Student Program staff members attended and made presentations at Los Alamos County Chamber of Commerce meetings and provided timeline information for student arrival and departure estimates and information about Laboratory Student Programs. The Chamber of Commerce once again sponsored Student Discount Welcome cards that provided discounts at local businesses. These cards provided a means of integrating the students into the community as well as the Laboratory. In addition, the calendar provided mentors and students with the opportunity to select a variety of other activities that would augment the students’ internship experiences.

**Communication with Students.** A major highlight and improvement for this year was the implementation of an electronic newsletter for students called “Student News, Student Views.” This biweekly publication (monthly during the nonsummer months) proved to be an effective means of communicating with students. Information included in the newsletter dealt with seminars, meetings, Students’ Association activities, resources, websites, safety, security, and community events.

**Housing Assistance.** Although the Laboratory has year-round participants in the student program, the majority of students come to Los Alamos County during the summer months. As a result, it can be difficult for students to find affordable short-term housing (three months or less). In an effort to assist students in finding housing options, EPO

contracted with Virtual Los Alamos, a local web-based business, to create a website for local homeowners to post—free of charge—rental openings such as houses, apartments, or rooms. Students were encouraged to use this website to meet their housing needs. Several articles were

printed in area newspapers to attract potential landlord and student renters. This pilot project had some success in meeting student housing needs. Mentors and students checked it first when making arrangements for summer-student interns.

## The Students' Association

The Students' Association (SA) made great strides in FY02. Participants were able to move the organization from bare existence to the status of a strong, well-rounded institution that serves as a voice and resource for students. The FY02 goals for SA included creating more visibility for the organization, uniting students at the Laboratory, and working with the community to involve Laboratory students with other students.

SA started the year with a new look when the group sponsored a student competition to generate a new logo. The new logo was selected, and a new website was developed.

SA held regular meetings and coordinated the biweekly student breakfast seminars, which had been started in FY01 by the Student Programs staff (see Figure 60). SA contacted various Laboratory organizations, and the organizations sponsored and paid for student breakfasts. Many of the breakfast seminars were held at the sponsoring organizations' sites. In addition, the sponsoring organizations either provided a brief presentation or a tour of their areas during these seminars. The seminars were very popular and

positive for students because they provided a means of connecting students with the Laboratory, offered students the opportunity to learn firsthand about resources available to them, and brought students together socially. The program also allowed students the opportunity to provide SA with regular feedback about their internship experiences.

SA sponsored the annual student picnic and information fair, always a favorite summer event for students (see Figures 61 and 62). This year's highlight was the music, provided by a member of SPAC.



*Figure 60. Students and mentors enjoy breakfast burritos and conversation at a student breakfast held in May 2002.*



*Figure 61. Laboratory students gather at the annual student picnic Thursday, June 3, 2002, at Urban Park in Los Alamos. The picnic was held to welcome about 1,600 summer students to the Laboratory and to give student employees a chance to relax and meet incoming students. The event was cosponsored by the Students' Association and the Student Programs Advisory Committee.*



*Figure 62. Cameron Bass (MIT) achieved flight at a student picnic.*

In an effort to connect students to the community, SA met with the Los Alamos County Parks and Recreation Department and coordinated efforts to sponsor a biweekly “dinner and-a-movie night” at the local teen center. SA also worked with the Chamber of Commerce on the program to offer Student Discount Welcome cards.

SA has already elected new officers and will continue to flourish in FY03.

(To find out more about SA, visit its website at <http://sa.lanl.gov>.)

## Student Exit Survey Results

All students are asked to complete the online Student Exit Survey before leaving the Laboratory. The purpose of the survey is to get direct feedback regarding the intern's experiences in all aspects of student programs. Topics surveyed range from the offer letter, the hiring process, the workplan, and safety and training to communication with mentors. A summary of this year's survey is given in Table 22.

In FY02, 335 surveys were completed. The results showed that returning students had observed overall improvements in student programs. New students reported that the hiring process was relatively smooth and that the tools provided— websites, tool kits, and orientation sessions—were

helpful in the transition from campus to Laboratory.

Many positive comments were made about the value and importance of the Student/Mentor Workplan Discussion Guide. One student wrote, "It was a good tool that coincided exactly with my educational needs and interests." Other students said that although the guide was structured, it was still flexible enough to allow for modifications based on new interests, projects, and assignments. In addition, students commented that they appreciated the opportunity to work directly with their mentors in creating or modifying the workplan.

**Table 22. Student Exit Survey Summary of Results**

Question	Result
Was your work plan (assignment) discussed before your student appointment began?	Yes = 84% No = 14% No Response = 2%
How well did the work plan describe the work you actually did during your appointment?	N/A = 35% Excellent = 35% Very Good = 17% Satisfactory = 4% Needs Improvement = 3% No Response = 6%
Has this experience had any influence on your career plans or goals?	Yes = 74% No = 24% No Response = 2%
Do you feel that the subject and practice of safety was taken seriously by your coworkers, managers and fellow employees?	Yes = 97% No = 3%
Do/did you participate in any of the Students' Association activities?	Yes = 39% No = 60% No Response = 1%

Other comments addressed the impact that the internship had on long-term educational plans and career strategies. In many cases, students said the internship at the Laboratory either validated their chosen field of study or opened the door to new career and academic paths.

A continuing goal for FY03 will be to increase the number of survey responses because the survey is a critical tool in mapping future programmatic changes and modifications.



## Student Postings Initiative

**Program Description.** Matching quality students with meaningful co-op and summer internship opportunities is vital to developing the future workforce of Los Alamos National Laboratory (LANL, the Laboratory). The Laboratory is hiring hundreds of new employees, both technical and administrative. Many of the Laboratory's long-time scientific contributors are nearing retirement age. It is vital that their accumulated knowledge be transferred to the next generation of employees. Finding and matching up the best student candidates with the most appropriate mentors will help meet the Laboratory's hiring objectives.

The Laboratory's Education Program Office (in the Science and Technology Base Division) developed an on-line database in FY02 for posting of work/education opportunities for students. The web site provides Laboratory personnel a place not only to post student opportunities but also to review student responses. Students have an opportunity to view postings and to apply for open positions in their areas of interest. Mentors can

update all postings. Information submitted to the database can also be used to autofill student work plans.

The database is available to all Laboratory personnel at: <http://spi-internal.lanl.gov/spi/mentor/>. Use of the site requires a CRYPTOCard.

**Performance Goal, Objectives, and Milestones.** The Student Postings Initiative (SPI) focuses on identifying and placing quality students in appropriate Laboratory work experiences. This goal is accomplished by matching the Laboratory's scientific capabilities, resources, and work development needs with students possessing adequate skills and knowledge in specific scientific, mathematical, computer science, and engineering disciplines (Table 23). The SPI supports the Department of Energy Defense Programs mission by aligning with the following objectives:

- developing connections between the scientific community and national student populations;

**Table 23. Performance Goals**

November 2001	Establish parameters for the database and the web interface	Completed November 2001
November 2001	Complete the proper Laboratory documents and hire a database developer	Completed December 2001
January 2002	Meet with the database developer to outline parameters	Completed January 2002
February/March 2002	Develop and test the database	Completed March 2002
April/May 2002	Develop and test the web interface with the database	Completed May 2002
June 2002	Implement the pilot phase of student postings	Ongoing
September/October 2002	Roll out the SPI throughout Laboratory	Pending

- providing opportunities for students to apply critical thinking and problem-solving skills on complex problems of scientific significance; and
- promoting collaborative efforts between Laboratory divisions.

The SPI is designed to enhance the development of a quality workforce pipeline by standardizing and consolidating student-recruitment efforts, using the following methods:

- increasing student access to opportunities at the Laboratory;
- enhancing the ability to match student skills and knowledge with Laboratory needs; and

- providing an online source for Laboratory opportunities for student- and future-employee development.

The SPI was initiated in late 2001. Meetings were scheduled with the Laboratory's Human Resources (HR) Division to determine content needs and to ensure that the site would not conflict with HR functions. A database developer was contracted in early 2002. The database was completed, and a web interface was created. Security issues were identified and addressed by developing two sites, a Laboratory-only site allowing access only by means of CRYPTOCARD authentication, and an external site allowing student access. The two sites were activated in late June 2002. Pilot testing will continue through the end of FY02. When it is completed, the site will be initiated throughout the Laboratory.

To check student positions on the external site, interested persons will work through the following steps.

- Access the web page at <http://spi-external.lanl.gov/>.

Los Alamos National Laboratory

**LOS ALAMOS** NATIONAL LABORATORY

**Student Opportunities at LANL**

New Users will need to [Create a UserID](#)

UserID (EMail Address) Password

Operated by the [University of California](#) for the [National Nuclear Security Administration](#), of the US [Department of Energy](#). [Copyright© 2001 UC](#) | [Disclaimer/Privacy](#)

- If you are a first-time user, create a user ID to access and view open student positions. Select "Create User ID" in the left column and complete the required information.

Los Alamos National Laboratory

**LOS ALAMOS** NATIONAL LABORATORY

**Student Opportunities at LANL**

Create your profile

Email Address:

Password:

Password (confirm):

First Name:

Last Name:

- Once you are logged in, you will see a “Welcome” message appear. You now have four options:
  - “Home” (returns to the welcome page);
  - “Search Opportunities” (searches the criteria page);
  - “Modify Profile” (changes the profile page); and
  - “Submit Application” (sends the application form).

Los Alamos National Laboratory  
**LOS ALAMOS** NATIONAL LABORATORY

## Student Opportunities at LANL

**Welcome Richard!**

---

You may browse and search the educational opportunities currently available at Los Alamos National Laboratory by clicking on the “Search Opportunities”.

If you need to change your email address or your password, please use the “Modify Profile” link. If you identify a position that interests you, please submit an application.

Be sure to send in your “Application” by clicking the “Submit Application” link to the left and filling out the form. Once you have completed the form you will not have to submit again unless there are changes that need to be made in your application.

[Home](#)  
[Search Opportunities](#)  
[Modify Profile](#)  
[Submit Application](#)

- Under Search Opportunities, you may select from several categories—“Keyword Entry,” “Start Date” or “End Date,” and “Education Level.” A search will result in a display of open positions meeting the search criteria.

Los Alamos National Laboratory  
**LOS ALAMOS** NATIONAL LABORATORY

## Student Opportunities at LANL

**Open Position Search**

Categories:

Keywords:

Start Date:

End Date:

Education Level:

[Home](#)  
[Search Opportunities](#)  
[Modify Profile](#)  
[Submit Application](#)

Your search returned 5 results					
Title	Category	Ed. Level	Start	End	Major
<a href="#">Co-op student analyst/programmer</a>	Engineering	Undergraduate	8/15/2002	12/16/2002	Computer Science, Mathematics, Physics.
<a href="#">Mechanical Engineer Intern</a>	Engineering	Undergraduate	9/1/2002	5/5/2003	Mechanical Engineering
<a href="#">Co-op Database Developer</a>	Computer Science	Undergraduate	8/26/2002	12/24/2002	Computer Science
<a href="#">Co-op student analyst/programmer</a>	Mathematics	Undergraduate	8/15/2002	12/15/2002	Computer science, mathematics, physics
<a href="#">Software Application Developer</a>	Computer Science	Undergraduate	9/3/2002	12/24/2002	Computer Science, MIS

- You may click on the “Position Title” to view a detailed description of each student position. A full description of the position will then appear.

Los Alamos National Laboratory

LOS ALAMOS NATIONAL LABORATORY

## Student Opportunities at LANL

[Home](#)

[Search Opportunities](#)

[Modify Profile](#)

[Submit Application](#)

### Los Alamos National Laboratory Student Application

\*\* Indicates entry is required

#### Name

**Last Name \*\***

Alexander

**First Name \*\***

Richard

**Middle Name**

#### Miscellaneous

**Desired Time Frame (mm/dd/yyyy) \*\***

Start:

End:

**Age (Must be 16+) \*\***

☐ 16 - 18

☒ Over 18

**Citizenship \*\***

☒ US Citizen

☐ Permanent Resident Alien of USA

☐ Neither

#### Address(es)

**Current \*\***

**Permanent**

#### Phone(s)

**Current \*\***

**Alternate**

- If you are interested in any position, you may then select “Submit Application” and complete the application form.

Los Alamos National Laboratory  
**LOS ALAMOS NATIONAL LABORATORY**

---

## Student Opportunities at LANL

[Home](#)  
[Search Opportunities](#)  
[Modify Profile](#)  
[Submit Application](#)

<u>Posting Details</u>		
<u>Opportunity ID</u>	<u>Title</u>	
16163	Mechanical Engineer Intern	
<u>Category</u>	<u>Type</u>	<u>Opportunity</u>
Engineering	Technical Level	Co-Op Program
<u>Group</u>	<u>Clearance</u>	<u>Education Level</u>
ESA-DE - DESIGN ENGINEERING	Q	Undergraduate
<u>Primary Skill</u>	<u>Secondary Skill</u>	
No Critical Skill Selected	No Critical Skill Selected	
<u>Work Schedule</u>	<u>Start Date</u>	<u>End Date</u>
Full Time	9/1/2002	5/5/2003
<u>Description</u>		
<p>Work as a Mechanical Design Engineer Intern on various projects in the Engineering Science and Applications Division's Design Engineering Group (ESA-DE). Recent group projects include mechanical design, testing, and fabrication of state-of-the-art linear accelerator components, instrumentation, high -power magnet equipment, advanced material processing units, high and medium energy physics detectors, optical equipment, vacuum equipment, containment systems, glovebox systems, and remote positioning systems. Will apply general purpose analytical codes in solving structural, thermal, and fluid mechanics engineering problems to support engineering design. Other responsibilities may include, project estimation, planning and testing.</p>		
<u>Required Skills</u>		
<p>Ability to communicate clearly and concisely. Ability to work within a team of engineers, designers, technicians, and other project and customer personnel. Coursework in mechanical design. Ability to identify elements of engineering problems typically encountered in mechanical systems. Ability to le</p>		

- You will also be advised to go to the Laboratory’s HR site (<https://www.hr.lanl.gov/stuapp/default.asp>) and submit an application for employment.

**Highlights of This Year’s Accomplishments.** All milestones were met in FY02, and to date, the database has proved to be efficient and effective. Implementation of the pilot phase is continuing,

and problems are still being resolved. The SPI will be introduced to Laboratory management in a series of presentations in November 2002.

## **Student Programs Advisory Committee**

SPAC is a team of diverse individuals dedicated to improving students' lives at the Laboratory. The committee advocates for the quality of each student's life at the Laboratory, addresses issues surrounding student programs, and presents options to the Laboratory on the best solutions for student issues. SPAC includes student

representatives, members at large, and Laboratory representatives. SPAC meets biweekly during the academic year and weekly in the summer.

(To learn more about SPAC, visit its website at <http://set.lanl.gov/spac/>.)



## Symposium 2002: *Championing Scientific Careers*

Symposium 2002, held in Los Alamos on July 29 and 30, was a great success. Many changes and additions were made in this second annual symposium to provide students and postdoctoral appointees with the opportunity to present their research and projects conducted while at the Laboratory.

The event dates were coordinated in advance with Sandia National Laboratories to leverage efforts and to allow exhibitors and presenters to attend both laboratories' symposiums.

At the symposium, three professional-development seminars were scheduled: Achieving Personal Greatness, Funding for Graduate School, and From Student to Permanent Employee.

The two-day event was crowded with participants, staff members, mentors, and visitors viewing and critiquing student poster and technical presentations and visiting the various industry and educational exhibits. More than 150 students and postdoctoral appointees gave presentations. Forty-eight participants presented technical talks, and the remainder presented posters. The categories represented were: biosciences, chemistry, computing, earth and space sciences, engineering, materials science, mathematics, nontechnical information, and physics. Laboratory technical staff members, affiliates, and academic professionals judged the presentations.

The event concluded with a banquet and awards ceremony. Calvin Mackie, an educator and mechanical engineer at Tulane University, delivered the keynote address (see Figure 63). Eighteen symposium awards were presented.

As part of the effort to leverage related efforts

involving more than one laboratory, Sandia brought four students and three staff members to participate in the Symposium 2002 activities. The Sandia students presented posters of their work. In addition, LANL took six students to the Sandia event, and they gave oral technical presentations there. Both sets of students appreciated the opportunity to explore two laboratories while learning the various

types of work that are conducted by students at each one.

### Outstanding Poster Presentations

#### *Biosciences*

**Elias Rosen** (graduate student [GRA]), "Experiments to Support the Design of a Field Scale Colloid Test at the Yucca Mountain Alcos 8/Niche 3 Complex"

#### *Chemistry*

**Christin Carlson** (GRA), "Synthesis, Characterization and Reactivity of



*Figure 63. Nathaniel Morgan, center, of Design Engineering (ESA-DE) and his wife, Celina, talk with Symposium 2002 keynote speaker Calvin Mackie, right, who gave an inspiring address on achieving personal greatness.*

[1,3-bis(trimethylsilyl)allyl]Lanthanide Complexes”

#### **Computing**

**Andrew Marshall** (undergraduate student [UGS]), “UDM list(): A C++ Function to Find Nodes of a Tree with an Attribute-Based Search”

#### **Earth and Space Sciences**

**Emily Lane** (GRA), “The Ocean’s Role in Atmospheric Carbon Dioxide Variations”

#### **Engineering**

**William Fienup** (UGS) and **Kit Werley** (UGS), “A Computer-Controlled Three-Dimensional Probe Drive System for the Magnetic Reconnection Scaling eXperiment”

#### **Materials Science**

**Peter Chiarelli** (UGS) and **Gabriella Sanchez** (UGS), “Controlled Molecular Orientation in Ultrathin Films”

#### **Mathematics**

**Maria Kiskowski** (GRA), “CA Model for the Rippling Stage of Fruiting Body Formation in Myxobacteria”

#### **Nontechnical**

**Marla Maltin** (UGS), “The Laboratory’s Footprint: Our Environmental Impacts”

#### **Physics**

**Emma Torbert** (UGS), “RSX Experimental Data”

### **Outstanding Oral Presentations**

#### **Biosciences**

**Katrina Salazar** (UGS), “Acquisition of Fe from Fe(III)(hydr)oxides by *P. mendocina*”

#### **Chemistry**

**Jason Sonnenberg** (GRA), “Theoretical Studies of Bonding in Uranyl Complexes”

#### **Computing**

**Michael Brake** (UGS) and **Nicholas Scholz** (UGS), “Mobile Database Technologies for Transuranic Waste Operations”

#### **Engineering**

**Alexander Maslowski-Olivares** (UGS), “Selection Basis of the F-A Method or the Standard Differential Operator Method for the Calculation of Monte Carlo Neutron Criticality Perturbations”

#### **Materials Science**

**Adrianna Sequis** (Postdoctoral Researcher), “High Critical Currents in MgB<sub>2</sub> Superconductor: Influence of Microstructure and Processing”

#### **Mathematics**

**Miriam Nuño** (GRA), “The Immune System and Influenza A Virus”

#### **Nontechnical**

**Pallab Mozumder** (GRA), “The Implication of an Integrated Tradable REC Market: The US Context”

Figure 64 shows a student explaining his research to members of C-SIC.



**Figure 64.** James Kovach, center, of Actinide, Catalysis and Separations Chemistry (C-SIC), explains his research on ligand design strategies in organometallic chemistry to Cheslan Simpson and Kevin John, right, both of C-SIC, during Symposium 2002.